The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-8. (Canceled)

9. (Previously Presented) A method of manufacturing a semiconductor device comprising:

forming a first semiconductor film comprising an amorphous silicon over a substrate having an insulating surface;

adding a material comprising a metal for promoting crystallization to the first semiconductor film;

performing a first heating process to the first semiconductor film, thereby forming the first semiconductor film having a crystal structure;

forming a barrier layer on a surface of the first semiconductor film having the crystal structure;

forming a second semiconductor film containing a rare gas element on the barrier layer by plasma CVD method or high-frequency sputtering method;

performing gettering through a second heating process, thereby moving the metal to the second semiconductor film; and

removing the second semiconductor film.

10. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the rare gas element is added simultaneously with the formation of the second semiconductor film.

11. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the rare gas element is added after the formation of the second semiconductor film.

12. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the barrier layer is formed from a chemical oxide film that is formed using ozone water.

13. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the barrier layer is formed by oxidizing a surface of the barrier layer through a plasma process.

14. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the barrier layer is formed by oxidizing a surface of the barrier layer by generating ozone through irradiation with ultraviolet rays in an oxygen containing atmosphere.

15. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the rare gas element is at least one selected from the group consisting of He, Ne, Ar, Kr, and Xe.

16. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the rare gas element is added using one of an ion implantation method and an ion doping method.

17. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the first heating process is performed by radiation from a light source, the light source comprising at least one selected from the group consisting of a halogen

lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, and a high pressure mercury lamp.

18. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the first heating process is performed with a furnace annealing method that uses an electric heating furnace.

19. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the second heating process is performed by radiation from a light source, the light source comprising at least one selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, and a high pressure mercury lamp.

20. (Original) A method of manufacturing a semiconductor device according to claim 9, wherein the second heating process is performed with a furnace annealing method that uses an electric heating furnace.

21. (Previously Presented) A method of manufacturing a semiconductor device according to claim 9, wherein the metal is at least one selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

22. (Canceled)

23. (Previously Presented) A method of manufacturing a semiconductor device comprising:

forming a first semiconductor film comprising an amorphous silicon over a substrate having an insulating surface;

adding a material comprising a metal for promoting crystallization to the first semiconductor film;

performing a first heating process to the first semiconductor film, thereby forming the first semiconductor film having a crystal structure;

irradiating the first semiconductor film having the crystal structure with laser light;

forming a barrier layer on a surface of the first semiconductor film having the crystal structure;

forming a second semiconductor film containing a rare gas element on the barrier layer by plasma CVD method or high-frequency sputtering method;

performing gettering through a second heating process, thereby moving the metal to the second semiconductor film; and

removing the second semiconductor film.

24. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the rare gas element is added simultaneously with the formation of the second semiconductor film.

25. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the rare gas element is added after the formation of the second semiconductor film.

26. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the barrier layer is formed from a chemical oxide film that is formed using ozone water.

27. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the barrier layer is formed by oxidizing a surface of the barrier layer through a plasma process.

28. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the barrier layer is formed by oxidizing a surface of the barrier layer by generating ozone through irradiation with ultraviolet rays in an oxygen containing atmosphere.

29. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the rare gas element is at least one selected from the group consisting of He, Ne, Ar, Kr, and Xe.

30. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the rare gas element is added using one of an ion implantation method and an ion doping method.

31. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the first heating process is performed by radiation from a light source, the light source comprising at least one selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, and a high pressure mercury lamp.

32. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the first heating process is performed with a furnace annealing method that uses an electric heating furnace.

33. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the second heating process is performed by radiation from a light source, the light source comprising at least one selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, and a high pressure mercury lamp.

34. (Original) A method of manufacturing a semiconductor device according to claim 23, wherein the second heating process is performed with a furnace annealing method that uses an electric heating furnace.

35. (Previously Presented) A method of manufacturing a semiconductor device according to claim 23, wherein the metal is at least one selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

36. (Canceled)

37.-80. (Canceled)

81. (Previously Presented) A method of manufacturing a semiconductor device comprising:

providing a semiconductor film comprising amorphous silicon with a metal containing material for promoting crystallization;

heating the semiconductor film and the metal to crystallize the semiconductor film;

irradiating the crystallized semiconductor film with light so that the crystallized semiconductor film is melted at least partly;

forming a barrier layer on a surface of the crystallized semiconductor film;

forming a semiconductor film containing a rare gas element on the barrier layer;

removing the metal from the crystallized semiconductor film by gettering; and

removing the semiconductor film containing the rare gas element.

82. (Previously Presented) The method according to claim 81, wherein said light is laser light.

83. (Previously Presented) The method according to claim 81, wherein said light has an energy density of 360 mJ/cm^2 or higher.

84. (Previously Presented) A method of manufacturing a semiconductor device comprising:

providing a first semiconductor film comprising amorphous silicon with a metal containing a metal for promoting crystallization;

heating the first semiconductor film and the metal to crystallize the first semiconductor film;

irradiating the crystallized semiconductor film with light so that the crystallized semiconductor film is melted at least partly;

forming a second semiconductor film containing a rare gas element on the crystallized semiconductor film;

performing gettering by heating the crystallized semiconductor film and the second semiconductor film; and

removing the second semiconductor film.

85. (Previously Presented) The method according to claim 84 wherein said light is laser light.

86. (Previously Presented) The method according to claim 84 wherein said light has an energy density of 360 mJ/cm^2 or higher.

87. (Previously Presented) A method of manufacturing a semiconductor device comprising:

providing a first semiconductor film comprising amorphous silicon with a metal containing a metal for promoting crystallization;

heating the first semiconductor film and the metal to crystallize the first semiconductor film;

irradiating the crystallized semiconductor film with light so that the crystallized semiconductor film is melted at least partly;

forming a barrier layer on a surface of the crystallized semiconductor film;

forming a second semiconductor film containing a rare gas element on the barrier layer;

performing gettering by heating the crystallized semiconductor film, the barrier layer, and the second semiconductor film; and

removing the second semiconductor film.

88. (Previously Presented) The method according to claim 87 wherein said light is laser light.

89. (Previously Presented) The method according to claim 87 wherein said light has an energy density of 360 mJ/cm^2 or higher.

90. (New) A method of manufacturing a semiconductor device comprising:

forming a first semiconductor film comprising an amorphous silicon over a substrate having an insulating surface;

adding a material comprising a metal for promoting crystallization to the first semiconductor film;

performing a first heating process to the first semiconductor film, thereby forming the first semiconductor film having a crystal structure;

forming a barrier layer on a surface of the first semiconductor film having the crystal structure;

forming a second semiconductor film containing a rare gas element on the barrier layer by plasma CVD method or high-frequency sputtering method;

performing gettering through a second heating process, thereby moving the metal to the second semiconductor film;

removing the second semiconductor film;

patterning the first semiconductor film having the crystal structure to form at least one semiconductor island;

forming a gate insulating film over the semiconductor island; and

forming a gate electrode over the semiconductor island with the gate insulating film interposed therebetween.

91. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the rare gas element is added simultaneously with the formation of the second semiconductor film.

92. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the rare gas element is added after the formation of the second semiconductor film.

93. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the barrier layer is formed from a chemical oxide film that is formed using ozone water.

94. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the barrier layer is formed by oxidizing a surface of the barrier layer through a plasma process.

95. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the barrier layer is formed by oxidizing a surface of the barrier layer

by generating ozone through irradiation with ultraviolet rays in an oxygen containing atmosphere.

96. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the rare gas element is at least one selected from the group consisting of He, Ne, Ar, Kr, and Xe.

97. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the rare gas element is added using one of an ion implantation method and an ion doping method.

98. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the first heating process is performed by radiation from a light source, the light source comprising at least one selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, and a high pressure mercury lamp.

99. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the first heating process is performed with a furnace annealing method that uses an electric heating furnace.

100. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the second heating process is performed by radiation from a light source, the light source comprising at least one selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, and a high pressure mercury lamp.

101. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the second heating process is performed with a furnace annealing method that uses an electric heating furnace.

102. (New) A method of manufacturing a semiconductor device according to claim 90, wherein the metal is at least one selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

103. (New) A method of manufacturing a semiconductor device comprising:

forming a first semiconductor film comprising an amorphous silicon over a substrate having an insulating surface;

adding a material comprising a metal for promoting crystallization to the first semiconductor film;

performing a first heating process to the first semiconductor film, thereby forming the first semiconductor film having a crystal structure;

irradiating the first semiconductor film having the crystal structure with laser light;

forming a barrier layer on a surface of the first semiconductor film having the crystal structure;

forming a second semiconductor film containing rare gas element on the barrier layer by plasma CVD method or high-frequency sputtering method;

performing gettering through a second heating process, thereby moving the metal to the second semiconductor film;

removing the second semiconductor film;

patterning the first semiconductor film having the crystal structure to form at least one semiconductor island;

forming a gate insulating film over the semiconductor island; and

forming a gate electrode over the semiconductor island with the gate insulating film interposed therebetween.

104. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the rare gas element is added simultaneously with the formation of the second semiconductor film.

105. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the rare gas element is added after the formation of the second semiconductor film.

106. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the barrier layer is formed from a chemical oxide film that is formed using ozone water.

107. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the barrier layer is formed by oxidizing a surface of the barrier layer through a plasma process.

108. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the barrier layer is formed by oxidizing a surface of the barrier layer by generating ozone through irradiation with ultraviolet rays in an oxygen containing atmosphere.

109. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the rare gas element is at least one selected from the group consisting of He, Ne, Ar, Kr, and Xe.

110. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the rare gas element is added using one of an ion implantation method and an ion doping method.

111. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the first heating process is performed by radiation from a light source, the light source comprising at least one selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, and a high pressure mercury lamp.

112. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the first heating process is performed with a furnace annealing method that uses an electric heating furnace.

113. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the second heating process is performed by radiation from a light source, the light source comprising at least one selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, and a high pressure mercury lamp.

114. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the second heating process is performed with a furnace annealing method that uses an electric heating furnace.

115. (New) A method of manufacturing a semiconductor device according to claim 103, wherein the metal is at least one selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

116. (New) A method of manufacturing a semiconductor device comprising:

providing a semiconductor film comprising amorphous silicon with a metal containing material for promoting crystallization;

heating the semiconductor film and the metal to crystallize the semiconductor film;

irradiating the crystallized semiconductor film with light so that the crystallized semiconductor film is melted at least partly;

forming a barrier layer on a surface of the crystallized semiconductor film;

forming a semiconductor film containing a rare gas element on the barrier layer; and

removing the metal from the crystallized semiconductor film by gettering;

removing the semiconductor film containing the rare gas element;

patterning the crystallized semiconductor film to form at least one semiconductor island;

forming a gate insulating film over the semiconductor island; and

forming a gate electrode over the semiconductor island with the gate insulating film interposed therebetween.

117. (New) The method according to claim 116, wherein said light is laser light.

118. (New) The method according to claim 116, wherein said light has an energy density of 360 mJ/cm^2 or higher.

119. (New) A method of manufacturing a semiconductor device comprising:

providing a first semiconductor film comprising amorphous silicon with a metal containing a metal for promoting crystallization;

heating the first semiconductor film and the metal to crystallize the first semiconductor film;

irradiating the crystallized semiconductor film with light so that the crystallized semiconductor film is melted at least partly;

forming a second semiconductor film containing a rare gas element on the crystallized semiconductor film;

performing gettering by heating the crystallized semiconductor film and the second semiconductor film;

removing the second semiconductor film;

patterning the crystallized semiconductor film to form at least one semiconductor island;

forming a gate insulating film over the semiconductor island; and

forming a gate electrode over the semiconductor island with the gate insulating film interposed therebetween.

120. (New) The method according to claim 119 wherein said light is laser light.

121. (New) The method according to claim 119 wherein said light has an energy density of 360 mJ/cm^2 or higher.

122. (New) A method of manufacturing a semiconductor device comprising:

providing a first semiconductor film comprising amorphous silicon with a metal containing a metal for promoting crystallization;

heating the first semiconductor film and the metal to crystallize the first semiconductor film;

irradiating the crystallized semiconductor film with light so that the crystallized semiconductor film is melted at least partly;

forming a barrier layer on a surface of the crystallized semiconductor film;

forming a second semiconductor film containing a rare gas element on the barrier layer;

performing gettering by heating the crystallized semiconductor film, the barrier layer, and the second semiconductor film;

removing the second semiconductor film;

patterning the crystallized semiconductor film to form at least one semiconductor island;

forming a gate insulating film over the semiconductor island; and

forming a gate electrode over the semiconductor island with the gate insulating film interposed therebetween.

123. (New) The method according to claim 122 wherein said light is laser light.

124. (New) The method according to claim 122 wherein said light has an energy density of 360 mJ/cm^2 or higher.